

Computer and Network Security

CNT 5410 Sections 1272, OVER

Class Periods: MWF 12:50pm – 1:40pm (Period 6)

Location: LIT 0113 (Section 1272) --- Online (Section OVER)

Academic Term: Fall 2023

Instructor:

Prof. Vincent Bindschaedler

[vbindsch \(at\) cise \(dot\) ufl \(dot\) edu](mailto:vbindsch@cis.e.ufl.edu)

Office Hours: Online M 1:50pm – 2:40pm or by appointment

Teaching Assistant/Peer Mentor/Supervised Teaching Student: *TBA*

Course Description

This is an introduction to computer and network security. Topics covered include cryptography, applied cryptography, public-key infrastructure, network security, firewalls, secure communications, web security, authentication, passwords, malware, botnets, denial of service, anonymity and Tor, data privacy, side channel threats, and other timely topics (as time permits).

The course aims to provide students with foundational knowledge in computer security and the tools to read, understand and analyze academic computer security research. Reading material will largely consist of major papers from the research literature and chapters from the Security Engineering book by Ross Anderson that are freely available online. Links to all reading materials will be provided.

Course Pre-Requisites / Co-Requisites

Prereq: COP 3530, COT 5405. ; Coreq: COP 4600.

Knowledge of:

- Networking
- Operating/Distributed Systems

Note: this course is primarily aimed at graduate students. But highly motivated undergraduates are welcomed!

Course Objectives

Students will learn about foundational concepts of computer security and privacy. By the end of the semester, successful students will also be able to read, understand, and analyze computer security research papers and will have demonstrated basic ability to conduct research in this space.

Materials and Supply Fees

None

Required Textbooks and Software

None. PDFs of reading material and academic papers will be provided. Some programming assignments require the use of Python3.

Recommended Materials

“Security Engineering” by Ross Anderson (chapters of the book are available online for free)

Course Schedule

For an up to date course schedule, see E-learning platform (Canvas --- elearning.ufl.edu).

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance is *strongly recommended* by not mandatory. Due to the course format, students who miss many lectures will be at a *significant* disadvantage.

Students are expected to have done the reading before class and actively participate during lectures (e.g., by asking questions or by volunteering their opinions).

Students will be assigned written, hands-on assignments related to course topics and the course project. Assignments will be announced in class and will be handled through the E-learning platform (elearning.ufl.edu). Assignments turned in late will incur a lateness penalty of 15% per day, up to a maximum of 3 days (after which the grade will be 0).

If an extension is required for a UF-approved reason or an otherwise legitimate reason (e.g., medical, travel, family, religious exemption, etc.), this will be accommodated. Excused absences must be consistent with university policies in the Graduate Catalog (<https://catalog.ufl.edu/graduate/regulations>) and require appropriate documentation. Additional information can be found here: <https://gradcatalog.ufl.edu/graduate/regulations/>

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Course Project	100	30%
Assignments	100 each	20%
Midterm	100	20%
Final Exam	100	30%

Grading Policy

Percent	Grade	Grade Points
92.0 - 100	A	4.00
87.0 - 91.9	A-	3.67
83.0 - 86.9	B+	3.33
79.0 - 82.9	B	3.00
75.0 - 78.9	B-	2.67
71.0 - 74.9	C+	2.33
67.0 - 70.9	C	2.00
63.0 - 66.9	C-	1.67
59.0 - 62.9	D+	1.33
55.0 - 58.9	D	1.00
50.0 - 55.0	D-	0.67
0 - 49.9	E	0.00

More information on UF grading policy may be found at:

[UF Graduate Catalog](#)
[Grades and Grading Policies](#)

Academic Integrity

Students are required to follow the university guidelines on academic conduct and the student honor code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) at all times. Students failing to meet these standards will be reported to the Dean of Students, **which can result in the student receiving an 'E' for the semester**. In particular, students are explicitly forbidden from copying anything off of the Internet (e.g., source code, text, slides) without proper attribution or citation. This includes unauthorized use of AI tools to produce text or code. Students are also forbidden from copying code/answers from each other for the purposes of completing any assignment or a course project.

CISE Department Academic Integrity Policy

Academic integrity violations (i.e., cheating, plagiarism) will be reported to SCCR! The CISE department policy for such offenses is a course grade of E. But additional sanctions may be imposed by SCCR.

Reminder of the Honor Pledge: On all work submitted for credit by Students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Ethics Statement

This course covers topics concerning the security of many systems that are widely deployed and potentially critical. As part of this course, we will investigate methods, tools and techniques whose use may negatively impact the rights, property and lives of others. As security professionals, we rely upon the ethical use of the above technologies to perform research. However, it is easy to use such tools in an unethical manner. Unethical use includes the circumvention of existing security or privacy measurements for any purpose, or the dissemination, promotion, or exploitation of vulnerabilities of these services.

This is *NOT* a class on hacking. Any activity outside of the spirit of these guidelines will be reported to the proper authorities both within and outside of UF and may result in dismissal from the class and the University. Exceptions to these guidelines may occur in the process of reporting vulnerabilities through the proper channels; however, students with any doubt should consult Professor Bindschaedler for advice. *DO NOT* conduct any action which could be perceived as technology misuse anywhere or under any circumstances unless you have received explicit permission from Professor Bindschaedler.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in

connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University’s core values, including the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information, and veteran status.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- HWCHE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress,

please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <https://counseling.ufl.edu>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; <https://career.ufl.edu>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>.

On-Line Students Complaints: <https://distance.ufl.edu/getting-help/>; <https://distance.ufl.edu/state-authorization-status/#student-complaint>.